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Bushfire Assessment

Proposed boundary adjustment (Stage 1) and dwelling (Stage 2)

Lots 218 and 219 DP 22434 10 and 11 The Lakes Way, Elizabeth Beach

May 2024 Final (Rev 1)

Prepared for Ms R Cater

Project No:24023



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1. INTRODUCTION

This Bushfire Assessment has been prepared in relation to:

- a proposed boundary adjustment between land at Lots 218 and 219 DP 22434, 10 and 11 The Lakes Way, Elizabeth Beach (Stage 1) to create:
 - \circ Lot 1, with an area of 570m²; and
 - Lot 2, with an area of 1609m² (containing the existing dwelling at 10 The Lakes Way).
- (Following the boundary adjustment) erection of a dwelling on proposed Lot 1 (Stage 2).

Part of the land within the site and surrounds is mapped as bushfire prone land for the purposes of Section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act). This assessment considers the proposal in relation to the NSW Rural Fire Service guideline, *Planning for Bush Fire Protection 2019* (PBP).

Boundary adjustment is a type of subdivision. As such, the proposed development is for the subdivision of bushfire prone land that could lawfully be used for residential purposes and requires the issue of a bush fire safety authority by the Commissioner of the NSW Rural Fire Service (RFS) pursuant to Section 100B of the *Rural Fires Act 1997*.

2. PROPOSED DEVELOPMENT

The proposal is shown on a drawing by Mitchell Keith Ayres (Surveyor), *Plan of proposed subdivision of Lots 218 and 219 DP 22434* (Reference: 220601 DSUB, dated 01/02/2024). An extract of the plan of proposed subdivision is at Figure 2.1.

The proposed development involves:

- a proposed boundary adjustment between land at Lots 218 and 219 DP 22434, 10 and 11 The Lakes Way, Elizabeth Beach (Stage 1) to create:
 - \circ Lot 1, with an area of 570m²; and
 - Lot 2, with an area of 1609m² (containing the existing dwelling at 10 The Lakes Way).
- (Following the boundary adjustment) erection of a dwelling on proposed Lot 1 (Stage 2).



Figure 2.1: Site plan extract (Source: MK Ayres – Surveyor). Not to scale. Proposed Lots 1 and 2 created via the boundary adjustment in Stage 1 will retain vehicular access via their western/south-western boundary with The Lakes Way (the same as the existing means of access for the site).

3. SITE DESCRIPTION

The site comprises land described as Lots 218 and 219 DP 22434, 10 and 11 The Lakes Way, Elizabeth Beach.

The site is on the eastern side of The Lakes Way, about 50 metres north of the intersection with Bellman Avenue.

The land within Lot 218 DP 22434, 10 The Lakes Way (the northern allotment), has an area of about 973m² and contains an existing dwelling.

The land within Lot 219 DP 22434, 11 The Lakes Way (the southern allotment), has an area of about 1047m² and is currently vacant.

The site is shown in Figure 3.1. An overlay of bushfire prone land mapping affecting the site is also shown.

The western/south-western boundary of the site adjoins the part of the road reserve to The Lakes Way. A right of way (4.57 metres wide) exists along the eastern boundary of the site. There is not presently any formed access in the right of way, and none is proposed. Physical access will remain via the road reserve to The Lakes Way.

Land to the north, south and east of the site comprises residential land containing existing residential development. While scattered trees exist within these allotments, the land is generally maintained as an Asset Protection Zone (APZ).

To the west/south-west of the site, the adjacent portion of the road reserve to The Lakes Way surrounds an isolated area of public reserve described as Lot 1 DP 729841. The land within Lot 1 contains vegetation which is isolated from vegetation on other land by a bitumen access road (between the eastern side of Lot 1 and the western/south-western boundary of the site) which services properties between the main constructed road within The Lakes Way and Bellman Avenue.



Figure 3.1: Site Locality and Bushfire Prone Land Map

The vegetation within Lot 1 extends south from a point about 16 metres west from the north-western corner of Lot 218 (the northern allotment within the site). The land containing the vegetation has a depth of about 65 metres north to south. The width of the land containing the vegetation tapers to a point at its northern end, with a width (west to east) of <8 metres directly opposite Lot 218 and about 8-27 metres directly opposite Lot 219. The maximum width of Lot 1 is about 45 metres at its southern end, where it terminates at the northern side of the western end of Bellman Avenue.

The nearest area of potential bushfire hazard vegetation is within the isolated area of public reserve within Lot 1 DP 729841 to the west/south-west of the site. The area of vegetation within Lot 1 is limited by the area of that land, that is, approximately 1,900m². Consequently, the vegetated area within Lot 1 is limited to the small area of land located between the bitumen access road along the western boundary of the site, the formally constructed main road within The Lakes Way (about 19-37 metres west of the site) and the roadway within Bellman Avenue to the south.

The site is serviced by reticulated water and overhead electricity.

The following photos show the condition of the site and surrounding lands.



Photo 3.1: Looking west from the site towards the isolated area of vegetation in Lot 1 on the western side of the access road. The driveway to the existing dwelling on 10 The Lakes Way (to be contained within proposed Lot 2) is shown.



Photo 3.2: Looking north along the main road carriageway in The Lakes Way showing the western extent of the vegetation in Lot 1. The land on the western side of the road is occupied by the Pacific Palms Community Centre (part of the carpark is visible at the left hand side of the photo.



Photo 3.3: Looking east from the access road showing the existing dwelling on 10 The Lakes Way (to be part of proposed Lot 2).



Photo 3.4: Looking west through the land at 11 The Lakes Way, with the existing dwelling on the land at 10 The Lakes Way to the right (north).



Photo 3.5: Looking south along the access road that extends from Bellman Avenue within The Lakes Way road reserve showing the eastern extent of the vegetation in Lot 1. The site is about 45 metres from the northern side of Bellman Avenue. Physical and legal access to the site will remain via this access road.

3.1 Vegetation Classification

The nearest area of vegetation which may present a potential bushfire hazard to the site is within the isolated area of public reserve (Lot 1 DP 729841) to the west/south-west of the site. Lot 1 is a small (1,900m²) parcel of land surrounded by road pavement in The Lakes Way (east and west) and Bellman Avenue (south).

The vegetation within Lot 1 is remnant forest vegetation, with the nearest vegetation in Lot 1 approximately:

- 16 metres west from the north-western corner of Lot 218 (the northern allotment within the site) and about 45 metres from the existing dwelling on Lot 218; and
- 21 metres west/south-west from Lot 219 (the southern allotment within the site) and about 25 metres west/south-west from any part of the proposed dwelling to be erected on proposed Lot 1 following the boundary adjustment.

Given the effective (and permanent) separation distance between the isolated vegetation within Lot 1 from any other substantial areas of vegetation, the vegetation to the west/south-west of the site is considered as remnant vegetation. Applying the simplified approach as per Section A1.11.1 of PBP, remnant vegetation may be considered the same as *rainforest* vegetation for the purposes of applying AS3959-2018.

Any vegetation further to the west of The Lakes Way main road corridor is about 90-100 metres west of the site, in the area south of the tennis courts and west/north-west of the Pacific Palms Community Centre.

The vegetation on land further to the west of The Lakes Way main road corridor is *forested wetland* vegetation for the purposes of Table A2.1 of PBP. Any vegetation between the eastern side of the tennis courts and the western side of the main road in The Lakes Way has a width of about 25 metres between a footpath running along the western side of the road and the tennis courts.

Land to the north, east and south of the site is residential land, occupied by existing residential buildings. The land within the residential allotments is generally managed in conjunction with the residential use.

3.2 Slope Assessment

The assessment of slope has been undertaken in accordance with the methodology in Section A1.5 of PBP. The assessment of slope was undertaken via analysis of 1 metre resolution Digital Elevation Model (DEM) and through field analysis using a hand-held inclinometer and range finder.

The effective slope (that is, the slope of the land most likely to influence bushfire behaviour) has been conservatively assessed as >0-5° downslope in relation to the remnant vegetation west/south-west of the subject site. The slope of land under this vegetation tends to flatten out nearer to the eastern side of the main roadway in The Lakes Way (along the western side of the land containing the vegetation).

4. BUSHFIRE ASSESSMENT

4.1 Submissions Requirements for a BFSA

4.1.1 <u>The extent to which the development is to provide for setbacks, including Asset Protection</u> <u>Zones</u>

Appendix 1 of PBP provides the methods for determining the minimum APZs for residential subdivision.

The site is in the North Coast fire (weather) area and the relevant Fire Danger Index (FDI) is FDI 80. Table A1.12.3 of PBP provides the minimum APZs for residential subdivision for FDI 80 areas.

The minimum APZs are based on maximum potential radiant heat levels <29kW/m² for the future dwelling on proposed Lot 1 following the boundary adjustment (with a corresponding BAL of \leq BAL-29). The required APZs for the future dwelling on proposed Lot 1 following the boundary adjustment are shown in the following table:

Direction	Vegetation	Effective Slope	Required APZ
South-west/west	Remnant Forest (Rainforest)	>0-5° downslope	12 metres
East, North, South	N/A Managed residential land	N/A	N/A

In relation to proposed Lot 1 to be created via the boundary adjustment, the minimum required APZ can be achieved for the future dwelling on that allotment. The separation distance between any part of proposed Lot 1 and the remnant vegetation to the west/south-west is \geq 20 metres, permanently separated

by the access road in the part of The Lakes Way road reserve along the eastern side of the small area of reserve (Lot 1 DP 729841) containing the vegetation. The dwelling proposed for Lot 1 following the boundary adjustment (as Stage 2 of the proposed development) will – assuming a minimum 4.5 metre setback from the western/south-western site boundary – be about 24.5 metres from the vegetation in the small area of reserve to the west/south-west of the site.

The minimum required APZ is achieved by the existing dwelling on Lot 218 (to be contained in proposed Lot 2 following the boundary adjustment), with that dwelling \geq 45 metres from the nearest vegetation within Lot 1 DP 729841.

4.1.2 The siting and adequacy of water supplies for fire fighting

The siting and adequacy of water supplies is considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.3 to this assessment.

4.1.3 <u>The capacity of nearby public roads to handle increased volumes of traffic when a bush fire</u> emergency occurs

The capacity of public roads is considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.2 to this assessment.

4.1.4 Whether or not nearby public roads that link with the fire trail network have two way access

There is no fire trail network.

4.1.5 <u>The adequacy of arrangements for access to and egress from the development site for the</u> purposes of an emergency response

The adequacy of arrangements for access to and egress from the development are considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.2 to this assessment.

4.1.6 <u>The adequacy of bush fire maintenance plans and fire emergency procedures for the</u> <u>development site</u>

No Bushfire Maintenance Plans (BMPs) are proposed. In the context of the development, the preparation of a BMP is considered unnecessary.

4.1.7 The construction standards to be used for building elements in the development

The existing dwelling on Lot 218 (to be contained within proposed Lot 2 following the boundary adjustment) was erected after 2002 and incorporates bushfire-resisting construction measures as applicable at the time of construction of that building.

Stage 2 of the proposal involves the erection of a dwelling on proposed Lot 1 following the boundary adjustment. The proposed dwelling (to be sited in proposed Lot 1) is a Class 1 building for the purposes of Volume 2 of the National Construction Code (Building Code of Australia, the NCC/BCA). The site is in the North Coast fire (weather) area and is subject to a Fire Danger Index (FDI) of FDI 80.

Appendix 1 of PBP provides the site assessment methodology for determining the applicable Bushfire Attack Level (BAL). Once the BAL is determined, construction requirements for the corresponding BAL apply subject to *AS3959-2018: Construction of buildings in bushfire-prone areas* subject to Section 7.5 of PBP.

The plan for the proposal development indicates that the dwelling to be erected (as Stage 2) on proposed Lot 1 (following the boundary adjustment) will be setback approximately 4.5 metres from the western (front) boundary of proposed Lot 1 with the access road in the eastern part of The Lakes Way road reserve.

The nearest vegetation is to the west/south-west of the site, within Lot 1 DP 729841 on the western (opposite) side of that access road. The dwelling to be erected (as Stage 2) on proposed Lot 1 (following the boundary adjustment) will – assuming a minimum 4.5 metre setback from the western/south-western site boundary – be about 24.5 metres from the vegetation in Lot 1 DP 729841 to the west/south-west of the site. The highest assessed BAL in relation to vegetation on land to the west/south-west of the site, determined as per Table A1.12.6 of PBP 2019 (Determination of BAL, FFDI 80 – residential development), is BAL-19.

According to Section A1.8 (Shielding) of PBP, where an elevation is shielded from direct radiant heat arising from bush fire attack, then the construction requirements for that elevation can be reduced to the next lower BAL. A similar provision is contained in Section 3.5 of AS3959-2018.

The eastern elevation of the dwelling to be erected (as Stage 2) on proposed Lot 1 (following the boundary adjustment) will have no direct line of sight to the vegetation on land to the west/south-west of the site. Applying Section A1.8 of PBP, consideration may be given to construction of the east-facing elevation(s)

of the dwelling to be erected on proposed Lot 1 being reduced by one level of construction to meet the construction requirements for BAL-12.5 as per AS3959-2018.

4.1.8 <u>The adequacy of sprinkler systems and other fire protection measures to be incorporated into</u> <u>the development</u>

Not applicable.

4.1.9 <u>Registered fire trails on the property</u>

No registered fire trails exist on the property, and none are proposed.

4.1.10 <u>An assessment of the extent to which the proposed development conforms with or deviates</u> from PBP

Section 4.2 of this assessment provides an analysis of the development in relation to the performance criteria in Chapter 5 "Residential and Rural Residential Subdivisions" of PBP.

4.2 Performance criteria

Development for the purposes of subdivision is subject to considerations in Chapter 5 (Residential and Rural Residential Subdivisions) of PBP 2019.

The relevant performance criteria are considered in Table 4.2.1 to Table 4.2.3.

Table 4.2.1: Asset Protection Zones (Re: Table 5.3a) of PBP

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The		
ASSET PROTECTION ZONES	Potential building footprints must not be exposed to radiant heat levels exceeding 29kW/m ² on each proposed lot.	As per Table A1.12.3 of PBP, the minimum required APZ/separation distance is 12 metres. This is based on the consideration of vegetation to the west/south-west of the site as remnant vegetation and classification of that vegetation as rainforest via the simplified approach in Section A1.11.1 of PBP. In relation to proposed Lot 1 to be created via the boundary adjustment, the minimum required APZ can be achieved for the future dwelling on that allotment (Stage 2 of the proposal).
		The separation distance between any part of proposed Lot 1 and the remnant vegetation to the west/south-west is \geq 20 metres, permanently separated by the access road in the part of The Lakes Way road reserve along the eastern side of the small area of reserve containing the vegetation.
		The dwelling proposed for Lot 1 (as Stage 2 of the proposed development) will – assuming a minimum 4.5 metre setback from the western/south-western site boundary – be about 24.5 metres from the nearest vegetation to the west/south-west of the site. The highest assessed BAL in relation to vegetation on land to the west/south-west of the site, determined as per Table A1.12.6 of PBP 2019 (Determination of BAL, FFDI 80 – residential development), is BAL-19. The minimum required APZ is achieved by the existing dwelling on Lot 218 (to be contained in proposed Lot 2 following the boundary adjustment), with that dwelling about 45 metres from the nearest vegetation within Lot 1 DP 729841. The proposed development meets this criterion.
	APZs are managed and maintained to prevent the spread of fire towards the building.	All land within the site is to be maintained as an Asset Protection Zone (APZ), to the standard of an Inner Protection Area (IPA).
	The APZ is provided in perpetuity.	Land within the site can be maintained to the standard of an APZ in perpetuity.
	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	There are no impediments to maintenance of land within the site as an APZ. There are no apparent issues in relation to soil stability.

PERFORMANCE CRITERIA

RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA

The intent may be achieved where:

-ANDSCAPING

Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.

Any future landscaping is to be consistent with the maintenance of land within the site as an APZ, to the standard of an IPA. APZs are to be managed and maintained to the standard of an Inner Protection Area (IPA). Landscaping of the IPA to be in accordance with the principles in Appendix 4 of PBP. Any fences and gates to be constructed of either hardwood or non-combustible material.

Table 4.2.2: Access (Re: Table 5.3b PBP)

PERI	FORMANCE CRITERIA	RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The	intent may be achieved where:	
ACCESS	Firefighting vehicles are provided with safe, all- weather access to structures.	Physical access to proposed Lot 1 and Lot 2 (which will contain the existing dwelling) will remain via the access road which extends north from Bellman Avenue, within the eastern part of the road reserve to The Lakes Way.
	The capacity of access roads is adequate for firefighting vehicles.	Public roads serving the site have apparent capacity to carry fully laden firefighting vehicles.
	There is appropriate access to water supply.	 The site has access to reticulated water supply. The nearest hydrants are in the road reserve: outside the western/south-western boundary of Lot 218 (northern allotment within the site, to be proposed Lot 2 following the boundary adjustment); and to the south of the western/south-western boundary of Lot 219 (southern allotment within the site, to be proposed Lot 1 following the boundary adjustment).
PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	No new roads to be constructed.

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The	intent may be achieved where:	
NON-PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	No new roads to be constructed.
PROPERTY ACCESS	Firefighting vehicles can access the dwelling and exit the property safely.	Access to proposed Lots 1 and 2 following the proposed boundary adjustment is to be as per the first row in this table.

Table 4.2.3: Services (Re: Table 5.3c PBP)

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
WATER SUPPLIES	Adequate water supplies are provided for firefighting purposes.	 The site has access to reticulated water supply. The nearest hydrants are in the road reserve: outside the western/south-western boundary of Lot 218 (northern allotment within the site, to be proposed Lot 2 following the boundary adjustment); and to the south of the western/south-western boundary of Lot 219 (southern allotment within the site, to be proposed Lot 1 following the boundary adjustment).
	 Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations. 	 The nearest hydrants are in the road reserve: outside the western/south-western boundary of Lot 218 (northern allotment within the site, to be proposed Lot 2 following the boundary adjustment); and to the south of the western/south-western boundary of Lot 219 (southern allotment within the site, to be proposed Lot 1 following the boundary adjustment).
	Flows and pressure are appropriate.	No information is available on flows or pressures to existing hydrants in the public road reserve.
	The integrity of the water supply is maintained.	The proposed development will rely on the existing reticulated water supply and coverage provided by existing hydrants. The dwelling proposed for Lot 1 (as Stage 2 of the proposed development) will be <70 metres from the nearest hydrant.
ELECTRICITY SERVICES	Location of electricity services limits the possibility of ignition of surrounding bush land or fabric of buildings.	Electricity supply is overhead. Where possible, electricity supply to the proposed development is to be installed underground from existing public infrastructure.
GAS	Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	If proposed for future residential buildings on the proposed allotments, they are to be installed and maintained consistent with the relevant acceptable solutions of PBP.

5. RECOMMENDATIONS

The proposed development involves:

- a proposed boundary adjustment between land at Lots 218 and 219 DP 22434, 10 and 11 The Lakes Way, Elizabeth Beach (Stage 1) to create:
 - Lot 1, with an area of 570m²; and
 - Lot 2, with an area of 1609m² (containing the existing dwelling at 10 The Lakes Way).
- (Following the boundary adjustment) erection of a dwelling on proposed Lot 1 (Stage 2).

The following recommendations are made in relation to the bushfire protection measures for the proposed development:

- **A.** The land within the site boundaries of proposed Lots 1 and 2 is to be managed as an Asset Protection Zone (APZ).
- B. APZs are to be maintained in accordance with the requirements of an Inner Protection Area (IPA) as described in Appendix 4, Section A4.1.1 of *Planning for Bush Fire Protection 2019* (PBP) and any grassy vegetation within the IPA is to be maintained to a height <100mm. A clear area of low-cut lawn or pavement is to be maintained adjacent to the dwelling and any existing landscaping is to be removed from below the proposed decks.</p>
- C. Subject to (A) and (B), and assuming a 4.5 metre setback from the western/south-western boundary of the site, construction of the proposed dwelling to be erected (as Stage 2) on land within proposed Lot 1 following the boundary adjustment is to comply with the construction requirements for BAL-19 as per AS 3959-2018 (Construction of buildings in bushfire-prone areas) and any additional construction requirements/variations as outlined in Section 7.5 of Planning for Bush Fire Protection 2019 (PBP.
- D. Applying Section A1.8 of PBP, consideration may be given to construction of east-facing elevation(s) of the proposed dwelling referred to in (C) above, excluding the roof, being reduced by one level of construction to comply with the construction requirements for BAL-12.5 as per AS3959-2018 and the additional construction requirements/variations as outlined in Section 7.5 of PBP.

NOTES (5) & DISCLAIMER:

- 1. This assessment relates only to the development described in Section 2 of this assessment.
- 2. This assessment has been based on bushfire protection guidelines as outlined in the document entitled Planning for Bush Fire Protection 2019 (PBP).
- 3. Notwithstanding the precautions recommended, it should always be remembered that bushfires burn under a range of conditions and an element of risk, no matter how small, always remains.
- 4. This assessment does not imply or infer any approval for the removal and/or thinning of vegetation for Asset Protection or other purposes. It is the responsibility of the client/landowner to obtain all necessary approvals in this regard.
- 5. Occupants of any future residential building on the proposed allotments are advised to prepare a Bush Fire Survival Plan which is revised annually prior to the bushfire season. A Guide to Making a Bush Fire Survival Plan has been developed by the NSW RFS to assist residents in the preparation of their plan and can be found at the NSW RFS website - www.rfs.nsw.gov.au. On days of catastrophic fire weather, the NSW RFS recommends leaving early as the only safe option.

6. **REFERENCES**

NSW Rural Fire Service (2019)

Planning for Bush Fire Protection 2019

Standards Australia (2018)

AS 3959-2018 Construction of buildings in bushfire-prone areas